DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

MONTANA AMBIENT AIR QUALITY STANDARDS

DRAFT ENVIRONMENTAL IMPACT STATEMENT

COMMENT OF THE ANACONDA COMPANY ALUMINUM DIVISION

MARCH 1, 1979

FOREWORD

Since 1976 The Anaconda Company Aluminum Division has been installing a $38,000,000.00 emission control system for its Columbia Falls, Montana aluminum reduction plant in order to come into compliance with Montana's applicable emission standards. When completed fluoride emissions from the plant will be reduced to the level of 864 pounds a day.

This emission reduction will lower the plant fluoride emissions approximately 33% of the historical average.

The Montana Ambient Air Quality Study (MAAQS) covers essentially this same period of time, and reflects conditions and circumstances that previously existed or occurred as a result of plant fluoride emissions at levels that will be lowered by at least 67% under current pollution emission control technology.

On January 3, 1973, the Department of Health and Environmental Sciences (the "Department") published a draft Environmental Impact Statement ("EIS") on the "...ambient standards recommended by the MAAQS study".

The Montana Code Annotated at 75-1-201 prescribes what will constitute an adequate EIS as follows:

> "The legislature authorizes and directs that, to the fullest extent possible:
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> (2) all agencies of the state shall:
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> * * *
>
> (c) include in every recommendation or report on proposals for projects, programs, legislation, and other major actions of state government significantly affecting the quality of the human environment, a detailed statement on:
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> (i) the environmental impact of the proposed action;
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> (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented;
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> (iii) alternatives to the proposed action;
>
> (iv) the relationship betweeen local short-term uses of man's environment and the maintenance and enhancement of long-term productivity; and
>
> (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented;"
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> * * *

The MAAQS completely ignores requirements (c)(ii) and inadequately discusses other aspects of the legislative charge [e.g. (c)(iii)].

It is not possible to critique in detail the deficiencies in the draft EIS. Rather, Anaconda will to outline those general omissions and errors which must be corrected to provide a legally sufficient EIS.

I. GENERAL DEFICIENCIES IN THE MONTANA AMBIENT AIR QUALITY STUDY

A. The scientific literature upon which the proposed standards are based has not been subjected to adequate peer review. For example, the draft Economic Aspects of Air Pollution in Montana is cited throughout the draft EIS as a basis for the economic impacts of the proposed standards, yet it postdates the draft EIS, is a draft study, and carries a disclaimer that it does not "...represent Bureau policy".

B. Published works of noted authorities have been omitted from this draft document. While many of these studies vary in conclusions from the EIS, they have been evaluated by their scientific peers. For example, a study by Applegate and Adams (1960) is cited for the proposition that fluoride exposure of bean leaves "...caused a reduction in photosynthesis". (p. 198). Scientific papers by Treshow and Harner (1968) Can. J. Bot., 46: 1207-1210; and MacLean et al. (1967) Phytopathology 57: 756-758; would tend to contradict the theories of Applegate, yet these studies were not discussed. The authors of the draft EIS have failed to satisfy their duty "...to review all the literature reasonably available" (p.ii.) (emphasis added).

C. Four of the papers singled out as the most significant in the Conclusion (pps. 268-273) are unpublished and the Department has refused to provide copies of the papers by Carlson, 1978; Krook and Maylin, 1978; and Miles, 1978. To refuse access to these papers is patently unfair and violative of the principles of due process. In the absence of an opportunity for a timely review by all interested parties, these papers should be disregarded.

D. The authors of the papers upon whom the Department rely in proposing its recommended standards are a small group of graduate and current students from the University of Montana, educated in the precepts of environmental advocacy, rather than objectivity.

Bias in drafting the EIS was assured by reliance on the "principal author," a member of the same group.

E. The EIS is inadequate and incomplete in that it does not include an acceptable study or review of the socio-economic impacts of the proposed standards.

Specifically, the MAAQS relies exclusively on the draft economic study by Otis (1978) which is prefaced by the caveat:

> "This document is a preliminary draft. It has not been formally approved by the Air Quality Bureau and should not at this stage be construed to represent Bureau policy."

Anaconda agrees that this document should not represent the views of the Bureau. Nevertheless, this document is then quoted and cited throughout the draft EIS, pp. 15-17, 232, 244 and 273. This constitutes the only effort to satisfy the Legislative requirement that the Department balance environmental cost-benefit considerations. (MCA 75-2-102(1))

A brief illustration of one aspect of the irrational approach to a determination of economic damage from fluoride is the discussion at pp. IV-4,5 of Aesthetics and Private Property. The author utilizes the Dehlbom case as a basis to assert, "the damages paid by AAP were $1,250.00 per acre". (emphasis added). In fact, the case (1) involved a claim for personal injury and property damage, (2) involved a total acquisition of the property, and (3) was settled for a variety of reasons irrelevant to this discussion. There was no admission of liability by Anaconda and the $200,000.00 payment is not subject to a simple division by 160 acres to arrive at a damage estimate of $1,250.00 per acre. Nevertheless, this single piece of speculative evidence is used as a basis for all further economic analysis. This study is clearly inadequate to satisfy the requirements of an EIS.

We suggest a comprehensive socio-economic analysis should include, among other things, the most recent Arthur D.

Little report, statistics developed in a report by Maxine Johnson of the University of Montana in the 1950's, employment statistics, impact on service-related industries, payrolls, and population data.

In addition, statements and attitudes should be elicited from labor unions, the Chamber of Commerce, and other industries in the area with respect to the contribution of the Columbia Falls aluminum plant to the economy of the Flathead Valley.

Political attitudes should also be ascertained. The importance of the plant to the tax base of Montana and the locality should be determined in relation to its support of all public purposes, such as schools, roads, parks, and other public institutions.

Under the law, the Department must revise the EIS to correctly analyze the impact of the MAAQ's standards upon the economic, social, and political development of the state and the Flathead Valley.

F. The draft EIS initially represents that, "The proposed fluoride standard . . . is based on the level of hydrogen fluoride known to cause such damage". (EIS, p. iii) (emphasis added). Yet throughout the entire draft reference after reference is no stronger than "suggests", "indicates", "speculates", "might" and "hypothesizes" that fluoride causes damage. In no case is a conclusion stated that a particular level of fluoride is known to cause damage.

G. The draft EIS misquotes cited references and takes other scientific points out of context. For example, Weinstein (EIS p. 193) is cited for the proposition that, "In general, visible injury and/or growth inhibition occurs in plants when continued fluoride exposure causes changes in plant metabolism". This statement is simply not true. In fact, Weinstein (1977), Fluoride and Plant Life, Journ. Occupational Med. 19:49-78, has carefully explained that growth stimulation as well as inhibition may occur in the presence or absence of visible symptoms and that changes in plant metabolism may or may not be detrimental. There are many others.

II. THE MONTANA AMBIENT AIR QUALITY STUDY ATTRIBUTES ALL OF THE ALLEGED DAMAGE TO VEGETATION AND WILDLIFE TO THE ANACONDA PLANT, AND IGNORES OTHER UNRELATED, OBVIOUS AND PROVEN CAUSES.

Omissions and deficiencies include, but are not limited to, the following:

(a) fugitive dust from unpaved roads and agricultural operations;

(b) contaminants from non-stationary sources;

(c) pollution from other area and stationary sources;

(d) insect infestation;

(e) use and non-use of agriculture herbicides and insecticides; and

(f) effect of clear-cutting and forest fires.

III. THE FLUORIDE STANDARDS PROPOSED AS A RESULT OF THE MONTANA AMBIENT AIR QUALITY STANDARDS ARE UNLAWFUL, IMPOSSIBLE AND UNREASONABLE.

A. The MAAQS contains no factual basis that would legally support a definition of "Ambient Air" that would be controlling over property owned by Anaconda.

Furthermore, the definition has no precedent anywhere in the United States and would result in an unlawful hardship without equal or greater benefits to the public as required by Section 75-2-102(1) MCA.

B. In discussing the justification for the various fluoride standards proposed in the draft EIS, the authors state that "hydrogen fluoride***causes substantial economic damage to plants and animals . . . . The proposed fluoride standard therefore is based on the level of hydrogen fluoride known to cause such damage." Additionally they state "Most of the standards include a 'margin of safety', meaning the concentration allowed by the standard is lower than the concentration known to actually cause an effect." (emphasis added) (EIS, p. iii).

The foregoing will result in an ambient standard that is more stringent than is permitted by the aforementioned statute. Stated differently, that ambient standard that would protect a receptor from "substantial economic damage" should be less stringent than that level necessary to protect the receptor from simple cosmetic effect.

The Department has failed to propose standards at levels known to cause such substantial economic damage. Illustrative of the failure is the statement in the draft EIS at page 201:

> "Table III.G-11 shows that the youngest rapidly growing needles of ponderosa pine are injured at concentrations near 1.0 ppb for 24 to 48 hour exposures (Adams et al., 1956a)."

In fact, the exposure is 1.22 ppb and there is no discussion of that concentration necessary to cause substantial economic damage. The Department reveals the inconsistency at p. 270 with the statement, "Adams et al. (1956a) observed that ponderosa pine exposed to 1.22 ppb hydrogen fluoride for 24 hours showed slight injury to their needles." (emphasis added). Logically, the levels capable of causing substantial economic damage should be higher than 1.22 ppb.

Finally, Federal law requires a "margin of safety" only for health-related pollutants (EIS, p. 8). Apparently the Department has unlawfully applied a margin of safety in the previous example; otherwise they could not possibly suggest a standard of 1.0 ppb.

C. The draft (p. vi) states "[t]he Anaconda aluminum plant is expected to meet the proposed [ambient] standards with the equipment now scheduled for installation".

This is pure speculation with which neither MAAQS nor Anaconda has basis to agree or disagree. The scheduled

equipment will reduce fluoride emissions to 864 pounds per day; however, monitoring reports of other fluoride sources emitting less than 1,000 pounds of fluoride per day indicate that three of the four proposed fluoride standards might be violated repeatedly to a distance of 2 miles from the plant.

D. The Department has rejected the calcium formate monitoring technique as inaccurate and unreliable. Anaconda agrees. Nevertheless, the proposed ambient fluoride standards rely upon the publications by Carlson (1971), EPA (1974) and Sidhu (1977, 1978) which "estimated" the ambient fluoride concentrations in the forest using the same or similar techniques. (Draft EIS, p. 198, 211 and 273). Such Publications which rely on admittedly ambiguous test results should not be considered in the formulation of state fluoride standards.

E. The draft proposes a fluoride forage standard of 30 ppm. The literature on the effects of fluorides on cattle supports a weighted average standard such as those contained in the complete listing of state standards in revised Table B-V, attached hereto.

Moreover, the MAAQS provides no basis for applying cattle forage standards to other forms of wildlife and the types of vegetation they may consume.

THE ANACONDA COMPANY,
ALUMINUM DIVISION
March 1, 1979

TABLE B-V

FLUORIDE STANDARDS IN STATES WITH PRIMARY ALUMINUM REDUCTION (PLANTS)

Alabama	None
Louisiana	None
Arkansas	None
Missouri	None
West Virginia	None
Ohio	None
Indiana	None
North Carolina	None
Kentucky	Gaseous Fluoride

a) 0.82 ug/m^3 (1 PPB) maximum 1 month average not to be exceeded more than once per year.

b) 1.62 ug/m^3 (2 PPB) maximum 1 week average not to be exceeded more than once per year.

c) 2.86 (3.5 PPB) maximum 24 hour average not more than once per year.

d) 3.68 (4.5 PPB) maximum 12 hours not more than once per year.

Vegetation

40 ppm average concentration over growing season.

60 ppm - 2 month average.

80 ppm - 1 month average.

Maryland

1. Vegetable crops - 20 ppm.
2. Field crops - corn, grain, sorghum - 35 ppm.
3. Hay, silage, forage - 40 ppm.
4. All other field crops - 50 ppm.
5. Cattle forage - hay silage - 40 ppm - 12 month average.
6. 60 ppm - 2 month average
7. 80 ppm - not to be exceeded.

New York

Same as Kentucky.

Oregon

Emission standards - 1.3 lbs./ton monthly average.
1.0 lbs./ton annual average - after 1973.
Before 1973 - 3.5 lbs./ton monthly.
2.5 lbs./ton annual average.
No ambient regulations.

Pennsylvania

Total soluble fluorides as HF - 5 ug/m^3 - 24 hour average.

South Carolina

Gaseous Fluorides or HF:

3.7 ug/m^3 - 12 hour average
2.9 ug/m^3 - 24 hour average
1.6 ug/m^3 - 1 week average
0.8 ug/m^3 - 1 month average

	Primary Standards	Secondary Standards
Tennessee	30 days 1.2 ug/m^3 (1.5 ppb)	Same
	7 days 1.6 ug/m^3 (2.0 ppb)	Same
	24 hours 2.9 ug/m^3 (3.5 ppb)	Same
	12 hours 3.7 ug/m^3 (4.5 ppb)	Same
Texas	Same as Kentucky.	
Washington	Same as Kentucky. Also - 0.5 ug/m^3 average for March 1 through October 31.	
Wyoming	0.80 ug/m^3 24 hour average. 25 ppm vergetation fluoride.	